U.S. Application No. 09/457,732   14
Docket No. YOR919990137US1
(YOR.080)

REMARKS

Claims 1 and 5-36 are all the claims presently pending in the application.

Entry of this Amendment is proper because it does not raise any new issues requiring

further search by the Examiner, narrows the issues on appeal, and is believed to place the present

application in condition for immediate allowance.

While Applicants believe that all of the claims are clear and definite, to speed prosecution

and to place the application in condition for allowance, independent claim 1 is amended to define

more clearly the features of the invention, thereby overcoming the rejection of claims 1 and 5-36

under 35 U.S.C. § 112, second paragraph. Applicants submit that the Examiner should have

foreseen that claim 1 would be amended to overcome the rejection under 35 U.S.C. § 112,

second paragraph, and therefore, such amendment should not require further search and

consideration. Thus, the amendment to claim 1 should be entered and considered.

It is noted that the claim amendments are made only for more particularly pointing out

the invention, and not for distinguishing the invention over the prior art, narrowing the claims or

for any statutory requirements of patentability. Further, Applicants specifically state that no

amendment to any claim herein should be construed as a disclaimer of any interest in or right to

an equivalent of any element or feature of the amended claim.

Claims 1, 14-16, 31, and 32 stand rejected under 35 U.S.C. § 101.

Claims 1 and 5-26 stand rejected under 35 U.S.C. § 112, first paragraph, as allegedly not

being supported by utility, and claims 1, 14-16, 21, and 32 also stand rejected under 35 U.S.C. §

112, first paragraph, as allegedly being based on a disclosure which is not enabling.

Claims 1 and 5-26 stand rejected under 35 U.S.C. § 112, second paragraph.

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U.S. Application No. 09/457,732   15
Docket No. YOR919990137US1
(YOR.080)

Claims 1 and 5-36 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over

Borza (U.S. Patent No. 6,446,210) in view of Kharon, et al. (U.S. Patent No. 6,487,662;

hereinafter "Kharon").

These rejections are respectfully traversed in the following discussion.

I.   THE CLAIMED INVENTION

The claimed invention provides a method and system of processing semiotic data that

allows use of the data <u>without being a threat to privacy and that prevents misuse of such data,</u>

<u>without significantly altering the accuracy and sensitivity of the identification process</u> (e.g., see

specification at page 3, lines 9-14).

For example, the claimed invention compares encrypted data against stored encrypted

data while at the same time ensuring that unencrypted data is not available or retrievable <u>under</u>

<u>the condition that the data might be slightly different from the template.</u> That is, the claimed

invention determines whether P is <u>close</u> to P' by comparing only h(P) with h(P'). Thus, in

contrast to conventional methods, the claimed invention compares encrypted data against an

encrypted template under the possibility that the data might <u>be slightly different from the</u>

<u>template</u> (e.g., "close" to the data) (e.g., see specification at page 16, lines 12-17, and pages 17-

20).

II.   REJECTION UNDER 35 U.S.C. § 101

Claims 1, 14-16, 31, and 32 stand rejected under 35 U.S.C. § 101.

U.S. Application No. 09/457,732   · 16
Docket No. YOR919990137US1
(YOR.080).

The Examiner alleges that the claimed invention is *"inoperative and therefore lacks utility"* (se Office Action at page 5, paragraph 16). That is, the Examiner asserts that the claimed invention *"could not work"*, as evidenced by the Handbook of Applied Cryptography.

A.   First, Applicants respectfully submit that the claimed invention could (and does) work for its intended purpose. The claimed invention provides a method and system of processing semiotic data that allows use of the data without being a threat to privacy and that prevents misuse of such data, without significantly altering the accuracy and sensitivity of the identification process (e.g., see specification at page 3, lines 9-14).

For example, the claimed invention compares encrypted data against stored encrypted data while at the same time ensuring that unencrypted data is not available or retrievable under the condition that the data might be slightly different from the template. That is, the claimed invention determines whether P is close to P' by comparing only h(P) with h(P'). Thus, in contrast to conventional methods, the claimed invention compares encrypted data against an encrypted template under the possibility that the data might be slightly different from the template (e.g., "close" to the data) (e.g., see specification at page 16, lines 12-17, and pages 17-20).

B.   Second, Applicants submit that a person of ordinary skill in the art to which the invention pertains would understand that near collision resistance prevents someone from finding similar data sets which generate similar hashes. However, such is very different from (i.e., not comparable to) the problem addressed by the claimed invention, in which, given two similar data, determining the similarity of the two similar data based on the hashes or encryption of these data.

Thus, Applicants respectfully submit that the Examiner has misapplied the teachings of the Handbook of Applied Cryptography.

Indeed, Applicants note that the cited portion of the "Handbook…" does not even mention that it is impossible, but instead, merely states that "*it should be hard to find…*". Thus, on its face, the cited portion of the "Handbook…" does not actually state that such "*could not work*", as alleged.

For the foregoing reasons, Applicants respectfully submit that a person of ordinary skill in the art to which the invention pertains would recognize the utility of the claimed invention and would know and understand the claimed invention. Thus, Applicants request that the Examiner withdraw this rejection.

III.   CLAIM REJECTIONS UNDER 35 U.S.C. § 112, FIRST PARAGRAPH

A.   Claims 1 and 5-26 stand rejected under 35 U.S.C. § 112, first paragraph, as allegedly not being supported by utility.

First, as mentioned above, Applicants respectfully submit that the claimed invention clearly could (and does) work for its intended purpose. Thus, the claimed invention clearly does not lack utility.

B.   Claims 1, 14-16, 21, and 32 also stand rejected under 35 U.S.C. § 112, first paragraph, as allegedly being based on a disclosure which is not enabling.

With respect to the rejections that allege lack of enablement of the claimed invention, Applicants respectfully traverse this rejection.

The Examiner inquires as to "*[h]ow can two objects be compared when only one sample (i.e., a control sample) is obtained???*" (see Office Action at page 4, paragraph 12).

U.S. Application No. 09/457,732   18
Docket No. YOR919990137US1
(YOR.080)

Applicants note that, in Figure 2, data P' is acquired from the subject and data P is

obtained from database (block 205), so both pieces of data are obtained in Figure 2.

Thus, Applicants submit that the ordinary skilled artisan could certainly make and use the

claimed invention of a method of processing semiotic data, as claimed, after a thorough reading

of the specification with reference to the drawings. Therefore, Applicants respectfully traverse

this rejection.

Moreover, Applicants note that, as ample case law has held, the test for enablement is

whether <u>one of ordinary skill in the art</u> could practice (e.g., make and use) the invention (e.g., the

claimed invention), <u>without undue experimentation</u>.

Applicants respectfully submit that a *prima facie* case has not been established by the

Examiner. That is, the Examiner has not established the specific reasons why one of ordinary

skill in the art could not perform the claimed invention, <u>without undue experimentation</u>. The

Examiner should identify what information is missing and why one skilled in the art could not

supply the missing information without undue experimentation (e.g., see M.P.E.P. § 2164.04 and

§ 2164.06(a)).

Applicants respectfully submit that the specification, drawings, and original claims,

clearly and particularly define the invention with reference, for example, to the first exemplary

embodiment (e.g., see specification at page 12, line 4, to page 14, line 4) and the second

exemplary embodiment (e.g., see specification at page 14, line 6, to page 16, line 19)(see also

Figures 1-4 and 6).

In light of the specific examples in the original disclosure, drawings, and claims,

Applicants submit that the ordinarily skilled artisan could certainly make and use the claimed

invention of a method of processing semiotic data after a thorough reading of the specification

U.S. Application No. 09/457,732   19
Docket No. YOR919990137US1
(YOR.080)

with reference to the drawings. In other words, <u>one of ordinary skill in the art</u> could practice

(e.g., make and use) the invention, <u>without undue experimentation</u>.

Therefore, the Examiner respectfully is <u>requested to reconsider and withdraw this</u>

<u>rejection</u>.

IV.   CLAIM REJECTIONS UNDER 35 U.S.C. § 112, SECOND PARAGRAPH

Claims 1 and 5-26 stand rejected under 35 U.S.C. § 112, second paragraph.

The Examiner alleges that the term "substantially" in claims 1 and 14-16 "is a relative

term which renders the claim indefinite" (see Office Action at page 4, paragraph 14).

A.   Claims 1 and 14-16:

Applicants respectfully submit, however, that the term *"substantially"* has been held by

numerous Federal Circuit decisions to be clear and definite (e.g., see M.P.E.P. § 2173.05(b)(D)).

Indeed, the citations provided by the Examiner have held that the term "substantially" is clear

and definite, for example, because one of ordinary skill in the art would know what was meant

by "substantially equal" (e.g., see <u>Andrew Corp. v. Gabriel Electronics</u>, 847 F.2d 819, 6 USPQ2d

2010 (Fed. Cir. 1988).

In comparison, claim 1 recites, *inter alia*, a method of processing semiotic data, including

"to determine whether P' is close to a predetermined subject, comparing h(P') to available h(P)s

to determine whether P' <u>substantially matches, but does not exactly match</u>, one of said data set

P".

On the other hand, claim 15 recites, *inter alia*, a method of processing biometric data,

including *"to determine whether a data set P' is a predetermined subject, comparing an*

encrypted data set of P' to the at least one encrypted data set stored in the database to determine

U.S. Application No. 09/457,732   20
Docket No. YOR919990137US1
(YOR.080)

whether the data set P' substantially matches, but does not exactly match, the at least one

encrypted data set stored in the database" (emphasis added).

Applicants submit that, as held by a myriad of Federal Circuit decisions, the ordinarily

skilled artisan would clearly know and understand the metes and bounds of the claimed invention

which "*substantially matches*", after a thorough reading of the specification, claims, and

drawings.

Thus, the Examiner is requested to reconsider and withdraw this rejection.

B.   Claims 1 and 5-36:

The Examiner alleges that claims 1 and 5-36 are incomplete for omitting essential steps,

such omission amounting to a gap between the steps.

Applicants respectfully note that each step which is exemplary illustrated in the Figures is

not required to be included in the claims.

The test is whether the ordinarily skilled artisan would know and understand the metes

and bounds of the claimed invention. Thus, in this case, Applicants submit that a person of

ordinary skill in the art clearly would know the metes and bounds of the subject matter of claims

1 and 5-36, after a thorough reading of the specification and drawings.

Applicants submit that it is unclear why the Examiner believes that such steps are

essential to an understanding of the claimed invention by the ordinarily skilled artisan. Indeed,

Applicants submit that such steps are inherent in the language of the claim, as written.

However, to speed prosecution, Applicants have amended claim 1 to recite the features

suggested by the Examiner in order to define more clearly and particularly the claimed invention.

In view of the foregoing, the Examiner is respectfully requested to reconsider and

withdraw this rejection.

U.S. Application No. 09/457,732   21
Docket No. YOR919990137US1
(YOR.080)

V.   THE PRIOR ART REJECTION

Claims 1 and 5-36 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over

Borza in view of Kharon. Applicants respectfully traverse this rejection, for at least the

following reasons.

For the Examiner's convenience, the traversal arguments set forth in the Amendment

under 37 C.F.R. § 1.111 filed on June 18, 2004, the Amendment under 37 C.F.R. § 1.116 filed on

January 18, 2005, and the Amendment under 37 C.F.R. § 1.111 filed on April 15, 2005, are

incorporated herein by reference in their entirety.

In the "Response to Arguments" section of the Office Action, the Examiner alleges that

the features upon which Applicants rely are not recited in the claims (see Office Action at page

2, paragraph 5). However, Applicants submit that the traversal arguments which are set forth in

the Amendment under 37 C.F.R. § 1.111 filed on April 15, 2005 clearly point out the claimed

subject matter which is clearly and particularly defined, for example, by claim 1.

Also, in the "Response to Arguments" section of the Office Action, the Examiner alleges

that Borza discloses determining whether h(P) is close to h(P') (see Office Action at page 2,

paragraph 6).

However, Applicants respectfully reiterate that Borza <u>only mentions</u> that a <u>comparison of</u>

<u>encrypted data</u> is done, but does <u>not</u> discuss *how* to do it exactly.

That is, the disclosure of Borza clearly would <u>not</u> enable the ordinarily skilled artisan to

determine *how* to compare two <u>encrypted</u> data sets to determine similarity between the two

<u>original</u> data sets, which is an exemplary problem being solved by the claimed invention

Applicants note that the ordinarily skilled artisan would understand that encryption causes diffusion of data, which means that the encryption of two similar, but not identical data sets create two encrypted data sets that are very different.

Thus, merely comparing two encrypted data sets does not reveal the similarity between the two unencrypted data sets.

Therefore, contrary to the Examiner's position, Borza does not disclose or suggest *"to determine whether P' is close to a predetermined subject, comparing h(P') to available h(P)s to determine whether P' substantially matches, but does not exactly match, one of said data set P"*, as recited in claim 1.

Applicants respectfully reiterate that, while Borza generally describes comparing the encrypted data against an encrypted template (see Borza at column 8, lines 28-38), Borza simply mentions this only a single time in the disclosure and does not elaborate on this feature again. That is, Borza does not disclose or suggest with sufficient specificity how such a comparison could be implemented or accomplished.

Moreover, contrary to the Examiner's position, the cited portion of Borza at column 16, lines 31-38 does not determine whether h(P) is close to h(P'), as alleged by the Examiner.

Indeed, it is unclear how Borza at column 16, lines 31-38 even relates to the disclosure of comparing encrypted data against an encrypted template at column 8, lines 28-38. That is, nowhere at column 16, lines 31-38, or in Figure 13 which is being described, does Borza mention comparing encrypted data against an encrypted template.

Thus, the Examiner is mischaracterizing the teachings of Borza.

Applicants respectfully reiterate that it would not be possible to match h(P) against h(P'), according to the disclosure of Borza.

U.S. Application No. 09/457,732   23
Docket No. YOR919990137US1
(YOR.080)

On the other hand, the claimed invention provides specific solutions to this problem (e.g., see specification at pages 17-20) and defined by novel and unobvious combination of elements recited in claims 1-3 and 5-36.

Accordingly, Applicants respectfully submit that Borza neither discloses nor suggests at least "to determine whether P' is <u>close</u> to a predetermined subject, comparing h(P') to available h(P)s to determine <u>whether P' is close to some P</u>", in as complete detail as recited, for example, in independent claim 1.

On the other hand, Applicants respectfully reiterate that Kharon does <u>not</u> make up for the deficiencies of Borza.

The Examiner relies on Kharon for teaching the claimed "<u>*extracting sub-collections Sj*</u> *from the collection of data in data set P;* <u>*encrypting a predetermined number of such sub-collections*</u> *such that at least one of the sub-collections is reproduced exactly with a predetermined probability,* <u>*comparing encrypted versions of the sub-collections*</u> *Sj with those data stored in said database, wherein if one or more of the sub-collection Sj matches with said data, then verification is deemed to have occurred*", as recited in independent claim 1.

However, contrary to the Examiner's position, Kharon (at column 13, lines 43-67) does <u>not</u> describe extracting <u>multiple</u> subsets Sj (i.e., "*sub-collections*") from the data. Furthermore, Kharon does <u>not</u> describe encrypting a <u>number of such subsets</u> (i.e., a "*number of such sub-collections*") such that at least one is reproduced exactly with a predetermined probability.

Applicants respectfully submit that the Examiner seems to have confused using a smaller section of the data for verification (which would be less desirable since less data is used) whereas the claimed invention uses <u>multiple subsets</u> of the data for verification.

U.S. Application No. 09/457,732   24
Docket No. YOR919990137US1
(YOR.080)

Thus, using just a <u>smaller subset</u> of the data for verification would be <u>less</u> desirable since

it is easy to forge the data and does <u>not</u> solve the problem of being able to <u>compare two</u>

<u>encrypted data.</u>

On the other hand, using <u>multiple subsets</u> of the data, according to the claimed invention,

<u>allows encrypted data to be compared and to generate a measure of similarity.</u>

Thus, for the foregoing reasons, Applicant respectfully reiterate that neither Borza nor

Kharon discloses or suggests all of the features of the claimed invention.

Therefore, <u>the Examiner respectfully is requested to reconsider and withdraw this</u>

<u>rejection of claims 1 and 5-36.</u>

VI.   CONCLUSION

In view of the foregoing, Applicants submit that claims 1 and 5-36, <u>all</u> the claims

presently pending in the application, are patentably distinct over the prior art of record and are in

condition for allowance. The Examiner is respectfully requested to pass the above application to

issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the

Examiner is requested to contact the undersigned at the local telephone number listed below to

discuss any other changes deemed necessary in a telephonic or personal interview.

U.S. Application No. 09/457,732 25
Docket No. YOR919990137US1
(YOR.080)

   The Commissioner is hereby authorized to charge any deficiency in fees or to credit any

overpayment in fees to Assignee's Deposit Account No. 50-0510.

            Respectfully Submitted,

Date: _July 11, 2005_

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<u>**CERTIFICATE OF TRANSMISSION**</u>

   I certify that I transmitted via facsimile to (703) 872-9306 the enclosed Amendment

under 37 C.F.R. § 1.116 to Examiner Christian A. La Forgia on July 11, 2005.

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